

a) Tracking performance:

- Document the assumption on the simulation model that has been used, such as physics processes and detector simulations besides hand-calculations.
- Show the hit efficiency for each tracking layer in central Au+Au ($\sqrt{s}=200\text{GeV}$) and p+p ($\sqrt{s}=200/500\text{GeV}$) collisions a) for tracking from outside to inside with the existing PHENIX central tracking detector and b) from inside to outside without the existing PHENIX central tracking detector.
- What is the level of S/N for the strip-pixel system that is acceptable for the tracking with and without the central PHENIX tracking system?

b) VTX material budget:

- Document the level of details that has been included for each tracking layer and the mechanical support structure.
- To what extent has the impact of albedo particles been taken into account in simulations, such as albedo particles from the NCC?
- Show the VTX material budget as a function of pseudo-rapidity and azimuthal angle.
- What is the VTX material budget that is tolerable by the PHENIX collaboration as a whole: J/psi program, non-photonic electrons and DCA resolution necessary for a successful discrimination of charm / bottom? It appears that the total material budget for the current VTX design is $\sim 16\% X_0$. This is an issue that has to be addressed as soon as possible to allow for potential re-direction of efforts on the actual VTX layout for layer 3/4.

c) Photon-jet measurements / Jet measurements:

- What is the resolution of the jet pseudo-rapidity for jets for which only the VTX is used? How does this change when including the existing central tracking system? How is this dependent on p_T in particular for the case of VTX only tracking?
- What is the p_T reach of jet reconstruction in general for VTX only tracking?
- What is the efficiency for photon-jet reconstruction and therefore the impact on the accuracy of various observable measurements involving photon-jet measurements for an assumed integrated luminosity?

d) Heavy-flavor measurements:

- How is the DCA value of 50 mkm justified for various heavy-flavor measurements? What drives this number? How well can charm and bottom events really be separated?
- What is the status of the DCA resolution studies using the full VTX material thickness?
- Demonstrate the level of semi-leptonic electron reconstruction taking into account the impact of material thickness giving rise to conversion background.
- What is the efficiency for heavy-flavor type measurement and therefore what is the accuracy of various observable measurements for an assumed integrated luminosity such as RAA and v_2 in Au-Au and d-Au collisions and ALL in polarized p-p collisions?